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NOTIFICATION OF THE RECORDING
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| Date of mailing (day/month/year) 25 February 2000 (25.02.00) | IMPORTANT NOTIFICATION |
| Applicant's or agent's file reference 092/00810 | |
| International application No. PCT/IL99/00055 | International filing date (day/month/year) 28 January 1999 (28.01.99) |

1. The following indications appeared on record concerning:

☒ the applicant ☐ the inventor ☐ the agent ☐ the common representative

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| Applicant REFUAH, Aviv et al | |

1. The designated Office is hereby notified of its election made:

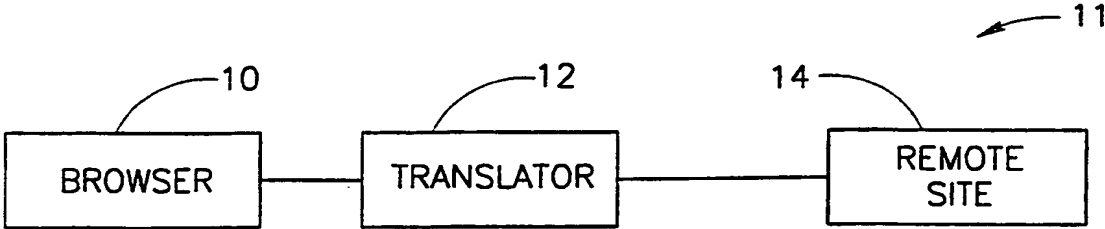
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| (54) Title: WWW ADDRESSING  <pre>graph LR; 10[BROWSER] --- 12[TRANSLATOR]; 12 --- 14[REMOTE SITE]; 14 -- 11 --> 10</pre> (57) Abstract <p>A method of WWW page retrieval from a web site, comprising entering information associated with the site; and directly displaying said page, using a browser, without any additional user intervention. Preferably, the information is in a non-Latin language. Alternatively or additionally, the information does not meet domain name specifications, for example, being in a free-form format.</p> | | |

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WWW ADDRESSING

FIELD OF THE INVENTION

The present invention relates to world wide web page retrieval and, in particular, to methods and apparatus for performing such retrieval using a minimally restrictive syntax.

BACKGROUND OF THE INVENTION

The World Wide Web (WWW) is a set of protocols that allow a user to download and upload pages of information between his computer and other computers, typically using a program called a browser. The usual mode of operation includes opening a browser, entering a URL (Uniform Resource Locator), and viewing the page fetched by the browser. The actual pages of information are located on physical host machines, each of which may be mapped to one or more domain names. Typically each domain is served by one host machine.

URL syntax is described in RFC 1630 ("Uniform Resource Identifiers in WWW"). The URL syntax relies heavily on the domain name space, as defined in RFCs 1034 ("Domain Names - Concepts and Facilities"), 1035 ("Domain Names Implementation and Specification") and 883 (Domain names - Implementation and Specification").

A network resource (host) is identified in the domain name space by a string containing 1 or more labels (each up to a maximum of 63 characters), separated by periods. The periods are intended to define and outline the hierarchical structure of domain name space. Although RFC 1034 permits the use of 8-bit binary encoding, it is suggested that applications use 7 bit ASCII for naming. Further, the suggested and currently implemented (de facto) naming scheme uses labels consisting only of alphanumeric characters from the Latin (ISO Latin 1) Character set plus the hyphen character. A valid name must start with a letter and the rest of the name should contain only letters, digits or hyphens.

Thus, the naming conventions for domains (and consequently sites and URLs) are rather restricted. Typically, there is an attempt to identify a particular site with a particular site owner, so that the address is meaningful. For example, IBM has a web site with the address "http://www.ibm.com" (".com" indicates commercial), Microsoft has the address "http://www.microsoft.com" but Microsoft Network has the address of "http://www.msn.com". The restrictions make it easy to create a one-to-one mapping between web addresses and a particular site. However, these addresses must be entered accurately. Any mistake will result in the site not being located.

In many countries, English is not a native tongue. Meaningful WWW addresses in such countries are typically created by transliterating the name of the site owner into Latin letters. Unfortunately, many languages do not have an accepted and widely known standard of

transliteration. Thus, there may be several plausible transliterations for a single name, resulting in several possible meaningful addresses, only one of which is correct.

Another problem is that the current address name scheme is not user friendly. First, in countries in which most people are not English speaking, the use of Latin letters and/or English spelling conventions may be a burden to many users, especially non-experienced users. In addition, in many cases there is no direct relationship between the name of the site owner and the address of his site. Guessing the address is typically not an option. Further, in countries where the name is transliterated, even if a meaningful address is created (such as for IBM, above) there is still no guarantee that a casual user will correctly transliterate that name from his native language. In many cases, the site addresses can be used as mnemonics, i.e., once the address is known, its content makes it easy to remember. However, it is often impossible to reconstruct the correct address from the name of the site owner.

For these and other reasons, search engines and WWW directories have been developed, in which a user enters a name and/or other information regarding the site owner and a WWW page containing a list of possible site addresses is generated and presented to the user. Some search engines allow the entry of non-Latin characters. In addition, various automated agents and SearchBots have been developed which serve as online search agents and which interface directly with the browser, for example, the WebTurbo software. In some browsers, an incorrectly entered name will automatically pull up a search page.

Some Web browsers allow a user to maintain a local list of preferred locations, which are stored and accessed by selection of a nickname and/or a description from a list, rather than by entering a complete URL. In some browsers, an incompletely typed URL may be automatically expanded by the addition of a standard suffix or postfix. Another helpful feature is automatic completion of URLs. If a URL has been previously used, entering the first few characters thereof will cause the entire URL to be suggested to a user.

The underlying addressing system in the Internet is based on numeric strings. However, in order to provide some measure of comfort, textual addresses, as described above, are used. A DNS (Domain Name Server) is a distributed application that translates textual addresses into numeric addresses. If the address is incorrectly formatted or incorrectly entered, it does not generate a proper numeric address. Rather it returns an output which generates an error message at the requester. The different DNS servers update each other with new mappings of textual addresses to numeric addresses.

Many network systems supply aliasing support and/or "hosts" files that contain associations between numeric strings and textual strings. In some systems, for example

Microsoft Windows 95 with Hebrew Support, it is possible to enter and use (on the network, not on an external DNS) a host name including non-Latin characters. It should be noted that host names are also limited, for example, they cannot contain spaces.

5 M. Duerst, in WWW document "<http://www.w3.org/international/draft-duerst-dns-118n-00.txt>" (a working draft), suggests introducing a new zero-level domain to allow the use of arbitrary characters from the Universal Character Set (ISO 10646), also known as Unicode, in domain names. Duerst suggests an implementation in which software with an internationalized user interface, such as a web browser will be responsible for conversions. The software would analyze the domain name, call the (DNS) resolver directly if the domain
10 name conforms to the domain name syntax restrictions and otherwise encode the name according to the specifications described in the document. Duerst also suggests providing a separate look up service that programs will call if a domain name contains characters outside the allowed range. Francois Yergeau, in WWW document "<http://www.alis.com:8085/~yergeau/url-00.html>", suggests an 8-bit encoding for the Unicode,
15 called UTF-8 (UCS Transformation Format 8), which preserves the full US-ASCII range, so that it is compatible with file systems, parsers and other software which relay on US-ASCII values but are transparent to other (8-bit) values.

SUMMARY OF THE INVENTION

It is an object of some embodiments of the present invention, to allow a user to retrieve
20 a WWW page using a native language, other than English and optionally using non-Latin characters, such as Cyrillic, Hebrew and Arabic.

It is an object of some preferred embodiments of the invention to allow flexible naming of Domains and URLs, preferably using non-Latin characters. Preferably, the length is not substantially limited in length.

25 It is an object of some preferred embodiments of the invention to allow a user to enter partial information regarding a site owner, preferably without imposing an order on the information. Preferably, such information directly retrieves a home page, which belongs to a site matching the entered information.

It is an object of some preferred embodiments of the invention, to allow a user to
30 directly access WWW pages, without requiring the user to recall long and/or obtuse URLs and/or without requiring the user to make selections and/or perform any additional procedure beyond what would have been required if the user had in fact typed the URL.

It is an object of some preferred embodiments of the invention to allow a user to surf the WWW using his native language, preferably, without requiring changes in existing hardware/software products.

In accordance with a preferred embodiment of the invention, a user enters a native language alias and/or name for a site owner and that input is converted into a numeric string address, so that data stored at the site can be retrieved. Preferably, the user enters the input into a standard portion of a browser, a location entry window, just as a standard URL would be entered. In accordance with one preferred embodiment of the invention, the input is converted by a DNS server. Preferably the DNS server directly translates the input to a numeric string. Alternatively, the DNS translates the input to a corresponding standard URL, which is then translated into a numeric string.

Alternatively, the input is translated into a standard URL by a local program which then transfers the URL to the browser. Alternatively, the browser passes the input to a program that performs the translation and transmits the generated URL to the Internet. Alternatively, a proxy server translates the input either to a numeric string or to a corresponding standard URL. Alternatively, a name server masquerades as a DNS server and converts non-standard names into standard names and/or IP addresses. Standard names are preferably passed to a standard DNS server.

In accordance with a preferred embodiment of the invention, there is provided a database which associates URLs and/or domain names with native language information and/or nicknames indicative of the site owners. Thus, a user can enter information which is associated with the site owner, rather than a proper name or a transliteration thereof. In some preferred embodiments of the invention, a translator, when determining a mapping between a native language input and a standard URL, consults the database. Preferably, the translation is performed as a service and/or as a proxy service. Preferably, the database is maintained at a single location, external to the machine that requires the translation. Alternatively, there is more than one site at which the database or a portion thereof, is maintained. Alternatively, the database resides on the same machine as the translator. Thus, in some cases, distributed databases need to be kept up to date.

In a preferred embodiment of the invention, periodic updates are sent to all the machines and are automatically assimilated in a local copy of a database. Preferably, the update comprises only changes. Alternatively, the entire database is transferred as a replacement file. In accordance with a preferred embodiment of the invention, the local database operates as a cache, so that fewer "external" queries are required. Preferably, when

attempting to match partial information with site related information, previously and/or recently used URLs are selected over unused URLs with a similar matching. It should be noted in this context, that as a result of the explosive growth of the Internet in the last few years, the event of a new domain name/URL address being added is more common than the event of an address being changed or deleted.

There is therefore provided in accordance with a preferred embodiment of the invention, a method of WWW page retrieval from a web site, comprising:

entering information associated with the site, which information is not a WWW address or a portion thereof; and

directly displaying said page, using a browser, without any additional user intervention, beyond said entering,

wherein said information is in a non-Latin language.

There is also provided in accordance with a preferred embodiment of the invention, a method of WWW page retrieval from a web site, comprising:

entering information associated with the site, which information is not a WWW address or a portion thereof; and

directly displaying said page, using a browser, without any additional user intervention, beyond said entering,

wherein directly displaying comprises analyzing said information using user-dependent information.

There is also provided in accordance with a preferred embodiment of the invention, a method of WWW page retrieval from a web site, comprising:

entering information associated with the site, which information is not a WWW address or a portion thereof; and

directly displaying said page, using a browser, without any additional user intervention, beyond said entering,

wherein said information is entered into a URL entry field in said browser.

There is also provided in accordance with a preferred embodiment of the invention, a method of WWW page retrieval from a web site, comprising:

entering information associated with the site, which information is not a WWW address or a portion thereof; and

directly displaying said page, using a browser, without any additional user intervention, beyond said entering,

wherein said page is selected responsive to a geographical location at which said information is entered.

In a preferred embodiment of the invention, said information is in a non-Latin language.

5 In a preferred embodiment of the invention, said information does not meet domain name specifications. Alternatively or additionally, said information does not meet URL specifications. Alternatively or additionally, said information comprises a plurality of words. Alternatively or additionally, said information comprises a field identifier and a field-match value. Alternatively or additionally, said information is associated with an owner of the site.
10 Alternatively or additionally, said information comprises a partial street address of said owner. Alternatively or additionally, said information comprises a telephone number of said owner.

In a preferred embodiment of the invention, the method comprises analyzing said partial information to determine a single translation thereof. Preferably, analyzing comprises correcting spelling in said information. Preferably, correcting spelling comprises correcting for
15 at least one transliteration error.

In a preferred embodiment of the invention, analyzing comprises applying natural language recognition on said information. Alternatively or additionally, analyzing comprises blocking access to certain types of sites. Alternatively or additionally, said translation comprises a only domain name. Preferably, said translation comprises a URL. Alternatively or
20 additionally, said association is determined using a database of associations.

Preferably, said database is at least logically associated with a particular user. Preferably, said database includes information regarding a particular user, which information is entered by said user, which page is selected for display responsive to said information and wherein said database is stored at a location remote from where the information is entered for
25 display of said page.

Alternatively or additionally, said database comprises at least one association which is particular to said particular user. Preferably, analyzing comprises analyzing responsive to said at least one association. Alternatively or additionally, said at least one association is entered by said particular user. Alternatively or additionally, said at least one association is automatically
30 generated responsive to a selection of a WWW page, from a plurality of suggested pages, by said particular user.

In a preferred embodiment of the invention, at least one association in said database is automatically generated responsive to a selection of a particular WWW page, from a plurality of suggested pages, by a plurality of users.

In a preferred embodiment of the invention, said database is at least logically associated with a translation server, which utilizes said database for translation.

In a preferred embodiment of the invention, said at least logical association comprises a physical association.

5 In a preferred embodiment of the invention, said analyzing is performed locally, where said page is displayed. Alternatively or additionally, said analyzing is performed remotely from where said page is displayed. Alternatively or additionally, said analyzing comprises determining a one-to-one mapping between said information and a translation. Alternatively or additionally, said analyzing utilizes a geographical location at which said information is
10 entered.

In a preferred embodiment of the invention, said information is entered by a user in a same way in which a standard URL would be entered. Alternatively or additionally, said information is entered into a window overlaying said browser. Preferably, said window is overlaying a location window of said browser.

15 In a preferred embodiment of the invention, said information is entered in a language not supported by said browser. Alternatively or additionally, said information is entered in a font not supported by said browser. Alternatively or additionally, directly displaying said page, comprises automatically providing password information for accessing said page. Preferably, a plurality of such passwords are stored in a password database associated with said user.

20 There is also provided in accordance with a preferred embodiment of the invention, a server comprising:

a database associating business information with WWW sites;

a translator which converts an input comprising business information into a WWW site address, using said database; and

25 a user information database,

wherein said translator utilizes said user information database for the conversion.

Preferably, said user database comprises a user's previous desired conversions. Alternatively or additionally, said user database comprises a user's geographical location.

30 There is also provided in accordance with a preferred embodiment of the invention, a system including a server as described above and a client which provides said input to said server and displays a WWW page indicated by said address.

There is also provided in accordance with a preferred embodiment of the invention, a server comprising:

a database associating information with WWW sites;
a user information database; and
a translator which converts input information provided to it, into a WWW site address, using said database and said user database.

5 Preferably, said input information comprises business information. Alternatively or additionally, said input information comprises domain name information. Alternatively or additionally, said input information comprises URL information.

There is also provided in accordance with a preferred embodiment of the invention, a software unit for integrating with an existing browser, comprising:

10 a first module adapted to be integrated with said browser and which adds at least one functionality to a user interface of said browser; and

a second module which communicates with a remote site having stored therein information,

wherein said second module uses said communication to retrieve at least some of said information to perform said added functionality.

15 Preferably, said functionality comprises sending an e-mail to an owner of a site and wherein said information comprises an association between a site and an e-mail address of the owner thereof. Alternatively or additionally, said functionality comprises a poll answering interface and wherein said information comprises at least one poll question to display.
20 Alternatively or additionally, said functionality comprises translating partial information into WWW addresses and wherein said information comprises an association between partial information and WWW addresses.

In a preferred embodiment of the invention, the unit comprises a third module which updates said information responsive to input entered at said browser. Alternatively or
25 additionally, said remote site performs an operation requested by said functionality, responsive to said user information database. Preferably, said remote site performs a matching between partial entered information and a business information database, responsive to information associated with a user of said browser. Alternatively or additionally, said remote site sends credit card information to a second remote site, responsive to said functionality and to said
30 information associated with a user of said browser.

In a preferred embodiment of the invention, said functionality does not affect a visual format of a GUI (Graphical User Interface) of said browser, when said functionality is not in use. Alternatively, said functionality does not affect a visual format of a GUI (Graphical User Interface) of said browser, when said functionality is in use.

There is also provided in accordance with a preferred embodiment of the invention, a software unit comprising:

a first module which receives, from a browser, a WWW address which does not meet WWW addressing standards;

5 a second module which translates said address into a WWW address which meets WWW addressing standards; and

a third module which instructs said browser to display a page associated with said translated WWW address.

10 Preferably, said second module performs said translation using a remote translation service. Alternatively or additionally, said first module impersonates a TCP/IP stack. Alternatively or additionally, said first module impersonates a HTTP service handler. Alternatively or additionally, said first module impersonates a DNS server. Alternatively or additionally, said first module steals a user input from said browser. Alternatively or additionally, said third module utilizes an OLE/DDE service. Alternatively or additionally,
15 said translated address comprises a complete URL. Alternatively or additionally, said unit comprises an upload module which provides site accessing information to uploaded to a remote computer. Alternatively or additionally, said unit comprises a page generation module which generates a WWW page in response to said non-standard WWW address. Preferably, said generated WWW page comprises a list of possible WWW pages.

20 Alternatively or additionally, said generated page comprises a directory of a plurality of pages in a particular site. Alternatively or additionally, said generated page comprises at least one advertisement. Alternatively or additionally, said generated page displays a request for more information. Alternatively or additionally, said generated page is generated locally, in response to a request for a remote WWW address.

25 In a preferred embodiment of the invention, said unit comprises a messaging module which displays a message responsive to non-availability of a required WWW page. Alternatively or additionally, said unit comprises an e-mail module which corrects e-mail addresses, responsive to information associated with e-mail addressees.

In a preferred embodiment of the invention, said unit is a separately compiled software.

30 There is also provided in accordance with a preferred embodiment of the invention, a computer readable medium having encoded thereon a representation of a software unit as described above.

There is also provided in accordance with a preferred embodiment of the invention, a method of WWW page retrieval from a web site, comprising:

entering information associated with the site;
spell correcting said information; and
displaying a page responsive to said information, using a browser.

Preferably, spell correcting comprises correcting transliteration errors. Preferably, said
5 information comprises a URL.

There is also provided in accordance with a preferred embodiment of the invention, a
method of accessing an Internet resource, comprising:

entering information, which information does not comprise even a partial address for
said resource; and

10 accessing said resource responsive to said information, without any additional user
intervention, beyond said entering,

wherein said resource comprises a news group.

There is also provided in accordance with a preferred embodiment of the invention, a
method of e-mail addressing, comprising:

15 entering an incorrect e-mail address, which does not form an alias, a portion or a
nickname of a valid e-mail address;

automatically correcting said address, using information at a first, remote, location; and

sending an e-mail message to a second remote location, via an Internet, using said
corrected address.

20 Preferably, said incorrect e-mail address comprises information associated with a
desired e-mail addressee. Preferably, said information comprises at least a portion of a
geographical address. Alternatively or additionally, said information comprises at least a
portion of a telephone number.

BRIEF DESCRIPTION OF THE DRAWINGS

25 The present invention will be more clearly understood from the following detailed
description of the preferred embodiments of the invention and from the attached drawings, in
which:

Fig. 1 is a schematic block diagram of a site translator configuration, in accordance
with a preferred embodiment of the invention;

30 Fig. 2 is a schematic block diagram of a site translator configuration, in accordance
with another preferred embodiment of the invention;

Fig. 3 is a schematic block diagram of a site translator configuration, in accordance
with another preferred embodiment of the invention;

Fig. 4 is a schematic block diagram of a site translator configuration, including a data server, in accordance with another preferred embodiment of the invention;

Fig. 5 is a schematic block diagram of a site translator configuration, including a domain name server, in accordance with another preferred embodiment of the invention;

Fig. 6 is a flowchart of a method of obtaining a WWW page, in accordance with a preferred embodiment of the invention; and

Fig. 7 is a schematic block diagram of a configuration including a client, a data server and a remote site, in accordance with a preferred embodiment of the invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

One aspect of the present invention relates to a method of enabling a user to enter a substantially free-form designation of a WWW site, preferably in the user's native language, and directly obtain the information from the site, without the necessity of using a search engine and/or an exact site address.

Figs. 1-5 are schematic block diagrams of several methods of configuring a system in accordance with this aspect of the present invention. Fig. 6 is a flowchart of a method of obtaining a WWW page, in accordance with a preferred embodiment of the invention. A user enters the information by which he wishes to obtain a WWW page (60). This information is preferably matched to a database (62), as a result of which an IP address is generated (64). The page is then obtained automatically using the IP address and is preferably displayed on the user's computer (66). The various configurations of Figs. 1-5, determine how and by what hardware each of these steps is performed.

In Fig. 1, a system 11 includes a browser 10, at which a user enters his request, a translator 12 which aids in converting this request into an IP address and a remote site 14, which hosts a desired WWW page. In a preferred embodiment of the invention, the translator masquerades as a TCP/IP stack (preferably Winsock in Windows 95). Alternatively, the translator is a proxy for the client machine. Such a proxy may be connected by a local network to the client machine and/or may be at the user's ISP (Internet Service Provider) and/or may be a remote machine, anywhere on the Internet. It should be noted that, in some preferred embodiments of the invention, all communications, in both directions, pass through the translator. Alternatively, only outgoing communications from the browser will go through the translator.

In Fig. 2, a system 21 includes a translator 22 which is in direct communication with a browser 20 and a remote site 24 which is in direct communication with browser 20. In this embodiment of the invention, browser 20 communicates with a local translator, which

converts free-form entered domain name addressing into standard URLs. In accordance with one preferred embodiment of the invention, the translator is integrated as a module of the browser. Alternatively or additionally, the connection to the translator is patched into the browser. Alternatively or additionally, the translator communicates with the browser through
5 existing hooks in the browser, such as the OLE/DDE protocol, under the Windows operating system. In a preferred embodiment of the invention, the browser contacts the translator if the entered address does not match certain criteria, such as form and character set.

In a preferred embodiment of the invention, the translator uses a local translation database. Preferably, this database is updated by an external server, either automatically, or by
10 a user request. In a preferred embodiment of the invention, a user may enter a personal preference for an association between a URL/domain name and partial and/or native language information. In one preferred embodiment of the invention, the local database comprises host alias files. In one preferred embodiment of the invention, one or more of these files are replaced by updated files. Alternatively, the translator preferably includes an automatic
15 application that downloads updates from a central server and updates the local files.

Fig. 3 illustrates a system 31, in which a translator 32 acts as a front end to a browser 30, which downloads Web pages from a remote site 34. In accordance with one preferred embodiment of the invention, translator 32 includes a separate input window, which is preferably overlaid on a portion of the browser window. Preferably, this separate window
20 remains on top on the browser and at a fixed relationship to at least one feature of the browser display. In a preferred embodiment of the invention, this window provides font support and data entry support for non-Latin character sets, even if the underlying browser and/or operating system do not. Preferably, such support includes support for languages which are not entered as single characters from the left to the right, for example Hebrew and Arabic, which are
25 entered right to left and Chinese pictograms, which are composed. Alternatively or additionally, translator 32 is hidden from the user, so that it appears to the user that he is working with and entering information directly into the browser. In one preferred embodiment of the invention, a transparent window is overlaid on the browser address entry window. Alternatively or additionally, the translator steals the keystrokes from the browser, preferably
30 by changing the window focus through the operating system. In a preferred embodiment of the invention, the translator sends the keystrokes to the browser, so that they are displayed, but performs a translation of the keystrokes and instructs the browser to use the addressed obtained by translation and ignore what was typed. Alternatively, the translator only steals the "return" key and at that key, reads the location entered into the browser location window and performs

the translation. In a preferred embodiment of the invention, the translator displays the translated URL and/or IP address. Preferably, this information is displayed in the browser location window. Alternatively, it is displayed in a status area associated with the browser and/or with the translator. In a preferred embodiment of the invention, both the original and the translated addresses are displayed side by side, for the user to learn.

Fig. 4 illustrates a connection between a translator 42 and a data server 46, in accordance with a preferred embodiment of the invention. In many of the above-described embodiments, translator 42 need not actually perform the translation itself. Rather, the input entered by the client is transmitted by translator 42 to a data server 46, which preferably performs the translation. Data server 46 returns a URL and/or an IP address to translator 42, which can then obtain data, either directly or through the browser, from a remote site 44.

Fig. 5 illustrates the integration of a translator 52 with a domain name server 58, in accordance with a preferred embodiment of the invention. When a browser 50 desires to connect to a remote site 54, the browser (or an installed TCP/IP stack) sends the domain name to DNS server 58, to be translated into an IP address. In accordance with one preferred embodiment of the invention, DNS server 58 utilizes a translator 52 to perform address translation for domain names that do not meet certain criteria. Such a translator may be local to the name server, such as on a local network or may be a remote service, accessed through a dedicated line or through the Internet. Alternatively, the DNS may be modified to perform the translation, preferably using look-up tables, but possibly using a pattern matching system. In a preferred embodiment of the invention, a plurality of translators are arranged in a hierarchical manner, similar to domain name servers, so that if a name is not found on one translator, other translators are queried. Preferably, this hierarchical structure utilizes the configuration and protocols used for existing domain name servers.

In an alternative embodiment of the invention, addresses to be resolved are passed first or only to the translator. In one preferred embodiment of the invention, the translator acts as a DNS. Preferably, the translator is registered as a primary DNS. Preferably, the translator translates only non-standard domain names, and passes standard domain names to the DNS. Alternatively or additionally, the translator acts as a filter, which converts non-standard domain names and/or free-form information into standard domain names, which are then passed to the DNS to be converted into IP addresses. In one preferred embodiment of the invention, the translator is in the gateway to a DNS server local network.

In a preferred embodiment of the invention, where the non-standard URL must pass through standard components, the non-standard URL is preferably encoded so that it is not

modified by such components, for example, by encoding the non-ASCII characters and/or by replacing empty spaces with fill characters. One example of a standard component is a browser, which may attempt to parse the input, instead of simply sending it to the DNS. Encoding may be required in order to avoid error detection and address completion mechanisms which may be implemented in a particular browser. Such encoding is preferably performed using a front end, such as described above and/or a patch to the browser.

In a preferred embodiment of the invention, the translator is used to convert the entire URL, not just the domain name, into a proper address. In some cases, a native language expression will map to a particular page at a remote site, the address of which the translator will be required to return to the browser. In a preferred embodiment of the invention, the DNS protocol is modified to allow the transmission of the entire address. Alternatively, a separate connection is opened between a translator portion resident at the browser and a translator portion resident at the DNS, through which connection such information is passed. Alternatively, two translators are used, one for the domain name portion and one for the rest of the URL. Preferably, both translators are provided with the same native language and/or free-form expression and one returns the IP address and one returns the rest of the URL. Preferably, these two translators are synchronized so that they provide a single complete URL. In a preferred embodiment of the invention where a proxy server is used, the proxy server can be used to split the URL and track its parts. Preferably, the proxy server provides a dummy IP address to the browser, when it is presented with a free form and/or native language expression and/or domain name by the browser. When that dummy address is detected by the proxy server, it may be replaced with the correct IP address and the correct other portions of the URL.

In a preferred embodiment of the invention, when a proper URL is passed to the translator, the translator returns it unchanged and/or passes it to a DNS to be translated. Alternatively, the address may be used as a key-word which is used by a user to indicate a site within a domain, for example, "www.microsoft.com software download".

In accordance with a preferred embodiment of the invention, the translator may perform one or more of the following functions:

(a) Correct spelling errors, especially those caused by transliteration errors. As a result, many near misses in site address entry will connect to the correct site.

(b) Accept words in any order. Preferably, these words are used to search a database in which each word and/or pattern is associated with a particular remote site.

(c) Find a site based on an (street/ P.O. Box/ e-mail) address of the site owner, and/or his telephone or fax numbers and/or a product, service name and/or trademark owned by the site owner and/or any particular information associated directly or indirectly with the site owner/operator. In a preferred embodiment of the invention, the (user's) focus is on the site itself and not on its owner. Thus, the information will be associated with the type/content/usage and/or information found in the site. In one example, the user may enter "freeware and software download center in Oakland" and the translator will locate a particular site and display it.

(d) Use field matching, for example "name=ibm".

(e) Request additional information.

(f) Generate a page with a list of possible WWW pages. Preferably, such a page will include only sites which are registered with a particular translation service. Preferably, the site owners will also register a graphical representation by which they wish to be displayed on the generated page. Such a page may also include advertisements. It should be appreciated that such a page may be generated locally, as a result of a local search, without actually sending any information out to the Internet. Thus, the page generation and display may be very rapid. In a preferred embodiment of the invention, the user will try out several of the sites and then indicate to the translator which site was the "correct" one. Thereafter, upon entering the same partial information, the site will be directly connected to. Alternatively or additionally, this selection will be used to generate a user profile and/or to aid in matching partial information with other sites. Preferably, the translator uploads these selections to the data server.

(g) Learn a user's particular associations. In a preferred embodiment of the invention, a local database is maintained in which each partial entry by a user is associated with the actual site that the user connected to. Thereafter, when the user enters the partial information, the site can be connected to without any additional input by the user. Alternatively, every such choice is registered with a remote translator, which, when it receives partial information, performs indexing responsive to the identity of the remote user. In a preferred embodiment of the invention, each user on a particular machine can set up a profile of partial information matching. Preferably, a user can actively register certain associations.

(h) Perform a matching operation based on the geographical location of the user. For example, entering "Pizza store" will generate a different web site connection, based on where the connection is from. For example, a user in Brighton, MA will be directed to a different pizza store from a user in downtown Boston, even if both stores belong to the same franchise. Preferably, a user enters his computer's location, during configuration and/or at the beginning

of the session, so that the client computer transmits its location to the translator. Preferably, a resident portion of the translator performs this transmission. Alternatively to a geographical location, a logical location may be used. Alternatively or additionally, sites are located based on them being associated with a user profile. In a preferred embodiment of the invention, a user profile is defined based on the user belonging to a certain customer club. Alternatively or additionally, the profile may be generated responsive to his age and/or previous browsing habits.

(i) Perform an automatic web search and return the address of a single hit.

(j) Provide an alternative page in cases where a page cannot be found. Preferably, when such an alternative page is provided, the user is informed, either by the browser or by a special pop-up message window generated by a resident portion of the translator.

(k) Parse a natural language query, for example "get me a pizza store". Alternatively or additionally, a command language can be used, for example, SQL.

(l) Translate only a domain name and provide in response a list of the sites that are registered under that domain name. For example, entering "Microsoft Inc." could generate a list of sites in the domain "microsoft.com", which are registered with the translation service.

In a preferred embodiment of the invention, each native language name and/or index word is associated with a plurality of sites. For example, many sites will be associated with "pizza". However, a particular site is designated the default site, for use if there isn't enough information available to otherwise uniquely select a single site.

In accordance with one preferred embodiment of the invention, the translator or a portion thereof is embodied as an external box, which may be connected on a telephone line between a computer with a modem and a remote computer. Alternatively, it is integrated into the operating system of the user's computer.

In a preferred embodiment of the invention, the translator is embodied as a distributed system. In one example, the matching an/or parsing is performed at one location, possibly the user machine, while the address translation is performed at a remote machine.

In a preferred embodiment of the invention, a resident portion of the translator is activated whenever the browser is started. In a preferred embodiment of the invention, the resident translator can communicate with external sites for many purposes including, automatic version update of the translator and/or indexes and/or tables; uploading client related information, such as use statistics and site access statistics; download advertising material to be displayed at various times; and resolve problems using an external service.

In a preferred embodiment of the invention, the local translator portion provides language support for native language address entry, even if the browser and/or operating system do not.

Fig. 7 is a schematic block diagram of a configuration including a client 70, a data server 72 and a remote site 74, in accordance with a preferred embodiment of the invention. A resident translator portion at client 70 preferably maintains the connection with data server 72. In one preferred embodiment of the invention, data server 72 transmits advertisements to the client. Alternatively or additionally, data server 72 transmits polls (for user response) to client 70. Preferably, server 72 receives the responses to the polls directly through the translator and not through a remote site. Alternatively, the polls are displayed in the browser as WWW pages, rather than as separate windows.

In accordance with another preferred embodiment of the invention, data server 72 can be used as an intermediate between client 70 and remote site 74, for the transfer of money. In a typical situation, if client 70 desires to make a purchase at remote site 74, he will be required to transmit credit card details over an insecure link (the Internet). Preferably, client 70 performs the purchase through data server 72, to which the credit card details have been previously downloaded and/or transmitted using a secure channel. The client transmits a product number and a remote site address to the data server and the data server performs the money transfer, preferably using a secure connection, but possibly using other means, for example, through a bank and/or a fax machine. Preferably, data server 72 verifies the identity of client 70, using a portion of the translator resident at client 70. In a preferred embodiment of the invention, the purchase is performed mostly automatically, by a user indicating to the resident portion of the translator, which product he wishes to purchase, preferably using a pointing device.

In a preferred embodiment of the invention, the translator adds icons and/or menus to the browser and/or overlays them on the browser window. Thus, functionality may be added to the browser. Additionally or alternatively to adding a button for purchasing, other buttons may be added, including, for example for sending e-mail to a site owner. Such additional functionalities preferably utilize information stored in the database, for example, the e-mail address of the site owner.

In a preferred embodiment of the invention, especially where the translator acts as a proxy server, the translator may be used to exercise parental control over the use of the client computer, for example to limit access to pornographic sites and/or money-spending sites. Preferably, the translator does not allow certain addresses to be translated. Preferably, each

client has associated therewith a list of allowed web sites, a list of proscribed web sites and/or a site rating, below which, access is allowed and above which, access is not allowed. The translator preferably includes or connects to a service that provides ratings for sites and/or domain names.

5 In a preferred embodiment of the invention, the translator performs password entry for sites that require a password. Instead of a user being required to recall a separate password and/or user name for each service to which he subscribes, when the user enters input associated with that site, the translator automatically enters the user name and/or password. Different nicknames may be associated with different users for the same page. Preferably, the
10 page with the password entry is also displayed to the user, but without requiring any input. Preferably, the passwords are maintained on the client machine, due to their sensitivity. Alternatively or additionally, a user is required to enter a single password in order to activate this feature.

In a preferred embodiment of the invention, the translator is embodied as a remote
15 translation service, with a local resident portion. Preferably, the remote portion is maintained as a network of hierarchical translation servers. In a preferred embodiment of the invention, the remote portion preferably includes a computer, a user information database, a site-owner information database, a search engine which searches the site-owner information data base, a HTTP server, a HTML generator and a client response portion, which controls the other
20 components of the server, responsive to input received from the client.

In a preferred embodiment of the invention, the client portion of the translator is embodied as a program that masquerades as a HTTP handler for the browser. Preferably, the translator registers itself as the HTTP handler. When the browser requests a page, the resident translator handles the translation, through the Internet and/or using a local database of
25 association, and then commands the browser, preferably through a DDE/OLE connection to obtain the particular page. Preferably, the local database includes user specific associations and/or is a cache of recently and/or commonly used addresses. Preferably, when a user requests a specific page, his local database is updated, preferably by a remote translator portion, to reflect an association between that particular choice and the information entered. In
30 some browsers, entry of a free-form URL will automatically cause a search-site to be connected to. Preferably, the resident portion of the translator captures such requests and performs a translation instead.

In some embodiments of the invention, words in the free-form input will be separated by a separator other than a blank, so that the browser does not cause problems with the existence of blanks in what is supposed to be a URL.

5 In a preferred embodiment of the invention, sites are manually registered with the translation service. A site-owner fills out a form, preferably on the Internet, and requests that the translator recognize a particular site. Preferably, the site owner suggests key words to be used in indexing. Alternatively, the owner of the translator enters this information. Alternatively, the translator automatically identifies domains and generates index terms for the domains. Preferably, the site-owner database is update able by the site owners, to add indexing
10 terms. Alternatively, if a large number of users indicate that they identify a particular site with particular index terms and/or keywords, this information is preferably entered into the site-owner database. A preferred way of making such an indication is by accumulating the choices made by users that entered partial information and received a list of possible sites. The site which is most often chosen for a particular group of key words is preferably made the default
15 choice (preferably, providing that the user does not have a personal selection).

In a preferred embodiment of the invention, users may also register by filing out an automated form.

It should be appreciated that the present invention has been described mostly with relation to Web browsers. However, in other preferred embodiments of the invention, the
20 methods and apparatus described herein may be applied to other types of Internet applications, which require domain name resolution, such as News services and FTP services. In addition, these methods may be applied to translating domain name portions of e-mail addresses. However, in e-mail name translation, the aspect of directly accessing data of some embodiments of the invention, may not apply. Additionally, although some software elements
25 are described herein as including a plurality of modules, it should be appreciated that these modules may be merged and/or sub-divided into modules, in some embodiments of the present invention.

It should be appreciated that the above described methods of address manipulation, as described hereinabove contain many features, not all of which need be practiced in all
30 embodiments of the invention. Rather, various embodiments of the invention will utilize only some of the above described techniques, features or methods and or combinations thereof. In addition, although the above description is focused on methods, apparatus for performing these methods is also considered to be within the scope of the invention.

It will be appreciated by a person skilled in the art that the present invention is not limited by what has thus far been described. Rather, the present invention is limited only by the claims which follow. When used in the following claims, the terms "comprises", "comprising", "includes", "including" or the like means "including but not limited to".

CLAIMS

1. A method of WWW page retrieval from a web site, comprising:
5 entering information associated with the site, which information is not a WWW address or a portion thereof; and
directly displaying said page, using a browser, without any additional user intervention, beyond said entering,
wherein said information is in a non-Latin language.
10
2. A method of WWW page retrieval from a web site, comprising:
entering information associated with the site, which information is not a WWW address or a portion thereof; and
directly displaying said page, using a browser, without any additional user intervention,
15 beyond said entering,
wherein directly displaying comprises analyzing said information using user-dependent information.
3. A method of WWW page retrieval from a web site, comprising:
20 entering information associated with the site, which information is not a WWW address or a portion thereof; and
directly displaying said page, using a browser, without any additional user intervention, beyond said entering,
wherein said information is entered into a URL entry field in said browser.
25
4. A method of WWW page retrieval from a web site, comprising:
entering information associated with the site, which information is not a WWW address or a portion thereof; and
directly displaying said page, using a browser, without any additional user intervention,
30 beyond said entering,
wherein said page is selected responsive to a geographical location at which said information is entered.

5. A method according to any of claims 2-4, wherein said information is in a non-Latin language.

6. A method according to any of claims 1-5, wherein said information does not meet domain name specifications.

7. A method according to any of claims 1-6, wherein said information does not meet URL specifications.

8. A method according to any of claims 1-7, wherein said information comprises a plurality of words.

9. A method according to any of claims 1-7, wherein said information comprises a field identifier and a field-match value.

10. A method according to any of claims 1-7, wherein said information is associated with an owner of the site.

11. A method according to claim 10, wherein said information comprises a partial street address of said owner.

12. A method according to claim 10, wherein said information comprises a telephone number of said owner.

13. A method according to any of claims 1-12, comprising analyzing said partial information to determine a single translation thereof.

14. A method according to claim 13, wherein analyzing comprises correcting spelling in said information.

15. A method according to claim 14, wherein correcting spelling comprises correcting for at least one transliteration error.

16. A method according to any of claims 13-15, wherein analyzing comprises applying natural language recognition on said information.

17. A method according to any of claims 13-16, wherein analyzing comprises blocking
5 access to certain types of sites.

18. A method according to any of claims 13-16, wherein said translation comprises a only domain name.

10 19. A method according to claim 18, wherein said translation comprises a URL.

20. A method according to any of claims 13-19, wherein said association is determined using a database of associations.

15 21. A method according to claim 20, wherein said database is at least logically associated with a particular user.

22. A method according to claim 21, wherein said database includes information regarding a particular user, which information is entered by said user, which page is selected for display
20 responsive to said information and wherein said database is stored at a location remote from where the information is entered for display of said page.

23. A method according to claim 20 or claim 21, wherein said database comprises at least one association which is particular to said particular user.

25 24. A method according to claim 23, wherein analyzing comprises analyzing responsive to said at least one association.

25. A method according to any of claims 23-24, wherein said at least one association is
30 entered by said particular user.

26. A method according to any of claims 23-25, wherein said at least one association is automatically generated responsive to a selection of a WWW page, from a plurality of suggested pages, by said particular user.

27. A method according to claim 23, wherein at least one association in said database is automatically generated responsive to a selection of a particular WWW page, from a plurality of suggested pages, by a plurality of users.

5

28. A method according to claim 20 or claim 21, wherein said database is at least logically associated with a translation server, which utilizes said database for translation.

10

29. A method according to any of claims 21-28, wherein said at least logical association comprises a physical association.

30. A method according to any of claims 13-29, wherein said analyzing is performed locally, where said page is displayed.

15

31. A method according to any of claims 13-29, wherein said analyzing is performed remotely from where said page is displayed.

20

32. A method according to any of claims 13-31, wherein said analyzing comprises determining a one-to-one mapping between said information and a translation.

33. A method according to any of claims 13-32, wherein said analyzing utilizes a geographical location at which said information is entered.

25

34. A method according to any of claims 1-33, wherein said information is entered by a user in a same way in which a standard URL would be entered.

35. A method according to claim 1-33, wherein said information is entered into a window overlaying said browser.

30

36. A method according to claim 35, wherein said window is overlaying a location window of said browser.

37. A method according to any of claims 1-36, wherein said information is entered in a language not supported by said browser.

38. A method according to any of claims 1-37, wherein said information is entered in a font not supported by said browser.

5 39. A method according to any of claims 1-38, wherein directly displaying said page, comprises automatically providing password information for accessing said page.

40. A method according to claim 39, wherein a plurality of such passwords are stored in a password database associated with said user.

10 41. A server comprising:
a database associating business information with WWW sites;
a translator which converts an input comprising business information into a WWW site address, using said database; and
15 a user information database,
wherein said translator utilizes said user information database for the conversion.

20 42. A method according to claim 41, wherein said user database comprises a user's previous desired conversions.

43. A method according to claim 41, wherein said user database comprises a user's geographical location.

25 44. A system including a server according to any of claims 41-43 and a client which provides said input to said server and displays a WWW page indicated by said address.

45. A server comprising:
a database associating information with WWW sites;
a user information database; and
30 a translator which converts input information provided to it, into a WWW site address, using said database and said user database.

46. A server according to claim 45, wherein said input information comprises business information.

47. A server according to claim 45, wherein said input information comprises domain name information.

5 48. A server according to claim 45, wherein said input information comprises URL information.

49. A software unit for integrating with an existing browser, comprising:
a first module adapted to be integrated with said browser and which adds at least one
10 functionality to a user interface of said browser; and
a second module which communicates with a remote site having stored therein information,

wherein said second module uses said communication to retrieve at least some of said information to perform said added functionality.

15 50. A unit according to claim 49, wherein said functionality comprises sending an e-mail to an owner of a site and wherein said information comprises an association between a site and an e-mail address of the owner thereof.

20 51. A unit according to claim 49, wherein said functionality comprises a poll answering interface and wherein said information comprises at least one poll question to display.

52. A unit according to claim 49, wherein said functionality comprises translating partial information into WWW addresses and wherein said information comprises an association
25 between partial information and WWW addresses.

53. A unit according to any of claims 49-52, comprising a third module which updates said information responsive to input entered at said browser.

30 54. A unit according to any of claims 49-53, wherein said remote site performs an operation requested by said functionality, responsive to said user information database.

55. A unit according to claim 54, wherein said remote site performs a matching between partial entered information and a business information database, responsive to information associated with a user of said browser.

5 56. A unit according to claim 54, wherein said remote site sends credit card information to a second remote site, responsive to said functionality and to said information associated with a user of said browser.

10 57. A unit according to any of claims 49-56, wherein said functionality does not affect a visual format of a GUI (Graphical User Interface) of said browser, when said functionality is not in use.

15 58. A unit according to any of claims 49-56, wherein said functionality does not affect a visual format of a GUI (Graphical User Interface) of said browser, when said functionality is in use.

59. A software unit comprising:

a first module which receives, from a browser, a WWW address which does not meet WWW addressing standards;

20 a second module which translates said address into a WWW address which meets WWW addressing standards; and

a third module which instructs said browser to display a page associated with said translated WWW address.

25 60. A unit according to claim 59, wherein said second module performs said translation using a remote translation service.

61. A unit according to claim 59 or claim 60, wherein said first module impersonates a TCP/IP stack.

30 62. A unit according to claim 59 or claim 60, wherein said first module impersonates a HTTP service handler.

63. A unit according to claim 59 or claim 60, wherein said first module impersonates a DNS server.

64. A unit according to claim 59 or claim 60, wherein said first module steals a user input
5 from said browser.

65. A unit according to any of claims 59-64, wherein said third module utilizes an OLE/DDE service.

10 66. A unit according to any of claims 59-65, wherein said translated address comprises a complete URL.

67. A unit according to any of claims 59-66, wherein said unit comprises an upload module which provides site accessing information to uploaded to a remote computer.

15 68. A unit according to any of claims 59-67, wherein said unit comprises a page generation module which generates a WWW page in response to said non-standard WWW address.

69. A unit according to claim 68, wherein said generated WWW page comprises a list of
20 possible WWW pages.

70. A unit according to claim 68 or 69, wherein said generated page comprises a directory of a plurality of pages in a particular site.

25 71. A unit according to any of claims 68-70, wherein said generated page comprises at least one advertisement.

72. A unit according to any of claims 68-71, wherein said generated page displays a request for more information.

30 73. A unit according to any of claims 68-72, wherein said generated page is generated locally, in response to a request for a remote WWW address.

74. A unit according to any of claims 59-73, wherein said unit comprises a messaging module which displays a message responsive to non-availability of a required WWW page.

75. A unit according to any of claims 59-74, wherein said unit comprises an e-mail module which corrects e-mail addresses, responsive to information associated with e-mail addressees.

76. A unit according to any of claims 49-75, wherein said unit is a separately compiled software.

77. A computer readable medium having encoded thereon a representation of a software unit according to any of claims 49-76.

78. A method of WWW page retrieval from a web site, comprising:
entering information associated with the site;
spell correcting said information; and
displaying a page responsive to said information, using a browser.

79. A method according to claim 78, wherein spell correcting comprises correcting transliteration errors.

80. A method according to claim 79, wherein said information comprises a URL.

81. A method of accessing an Internet resource, comprising:
entering information, which information does not comprise even a partial address for said resource; and
accessing said resource responsive to said information, without any additional user intervention, beyond said entering,
wherein said resource comprises a news group.

82. A method of e-mail addressing, comprising:
entering an incorrect e-mail address, which does not form an alias, a portion or a nickname of a valid e-mail address;
automatically correcting said address, using information at a first, remote, location; and

sending an e-mail message to a second remote location, via an Internet, using said corrected address.

83. A method according to claim 82, wherein said incorrect e-mail address comprises
5 information associated with a desired e-mail addressee.

84. A method according to claim 83, wherein said information comprises at least a portion
of a geographical address.

10 85. A method according to claim 83, wherein said information comprises at least a portion
of a telephone number.

1/2

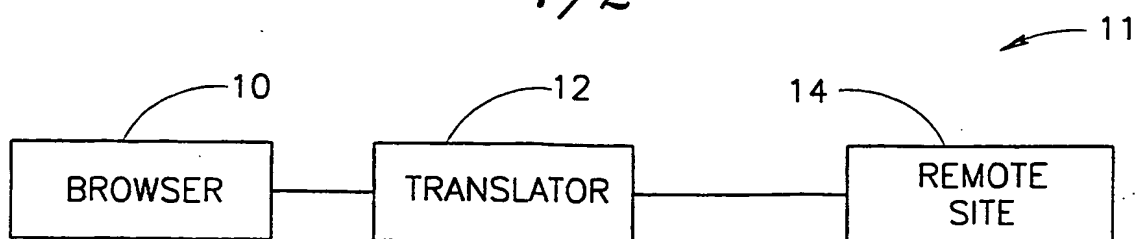


FIG.1

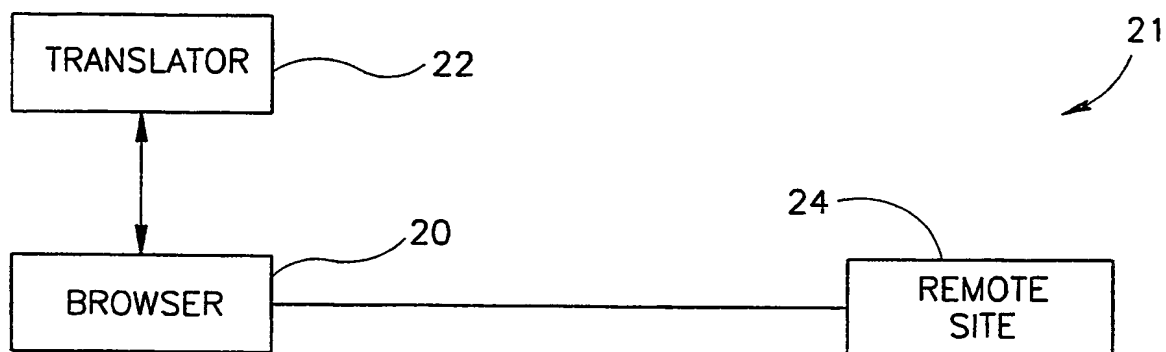


FIG.2

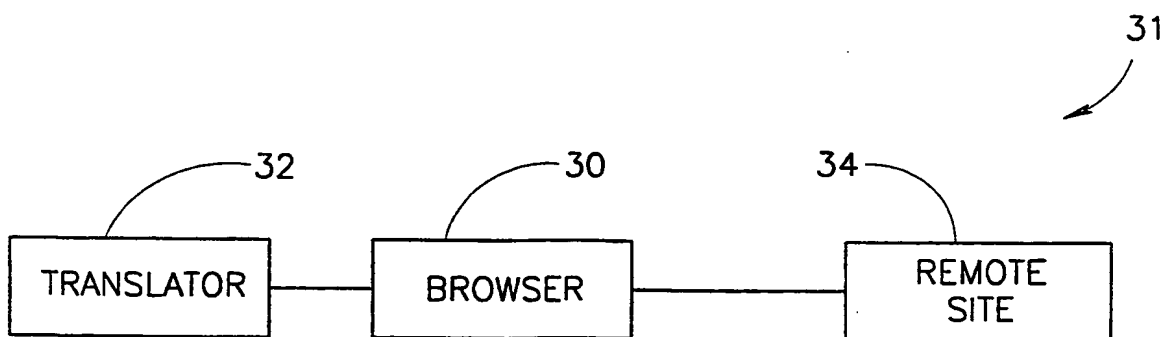


FIG.3

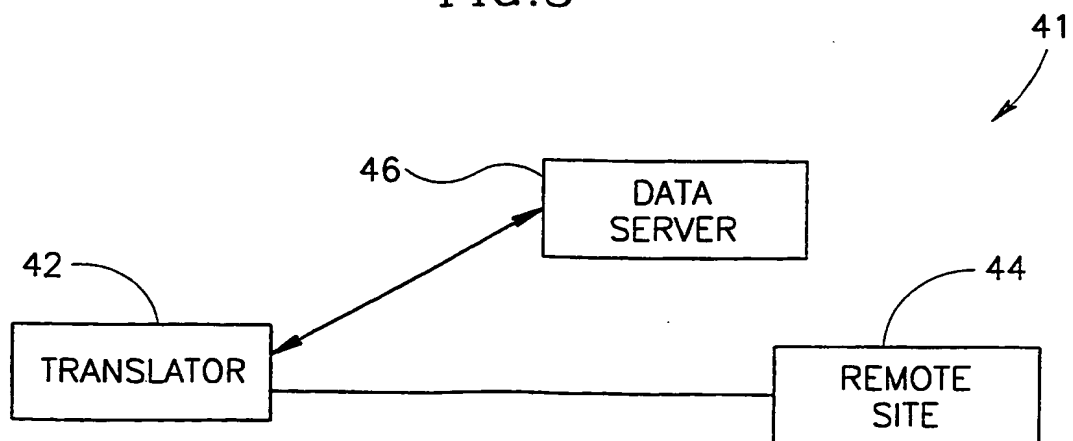


FIG.4

2/2

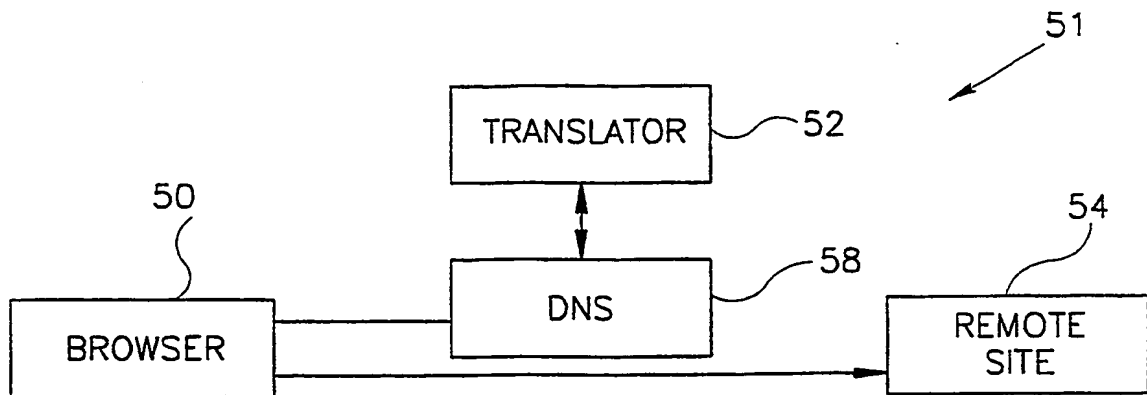


FIG. 5

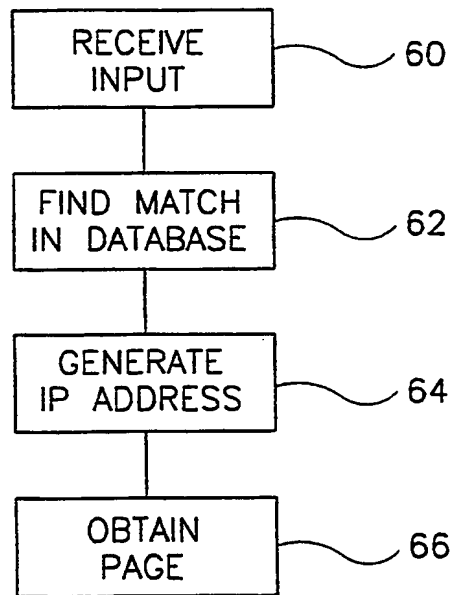


FIG. 6

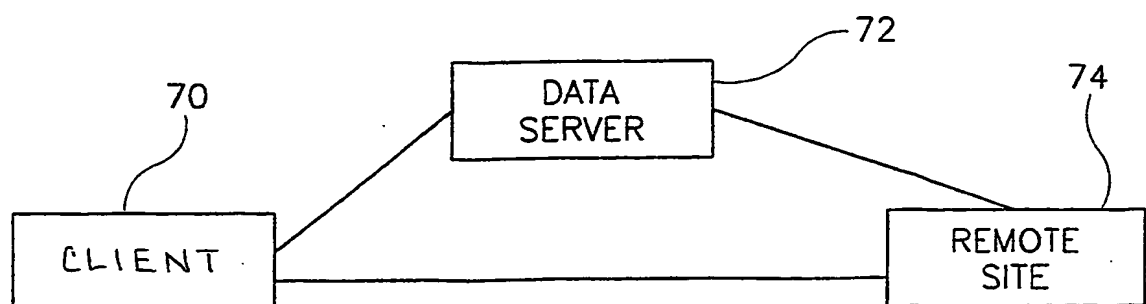


FIG. 7

INTERNATIONAL SEARCH REPORT

International Application No

IL 99/00055

A. CLASSIFICATION OF SUBJECT MATTER

IPC 6 G06F17/30

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 6 G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category ° | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|--|-----------------------|
| A | TAKADA T: "Multilingual information exchange through the World-Wide Web" COMPUTER NETWORKS AND ISDN SYSTEMS, vol. 27, no. 2, 1 November 1994 (1994-11-01), page 235-241 XP004037994 the whole document | 1-40 |
| A | HAHN M: "UNIFORM RESOURCE LOCATORS" EDPACS, vol. 23, no. 6, 1 December 1995 (1995-12-01), pages 8-13, XP000566203 page 11, line 38 -page 12, line 16 | 1-40 |

☐

Further documents are listed in the continuation of box C.

☐

Patent family members are listed in annex.

° Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

T later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

X document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

Y document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

* & * document member of the same patent family

Date of the actual completion of the international search

16 June 1999

Date of mailing of the international search report

30.09.99

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

KATERBAU, R

INTERNATIONAL SEARCH REPORT

International application No.
PCT/IL 99/00055

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.

2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-40

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

1. Claims: 1-40

A page retrieval method for entering non-standard URL addresses into a WWW browser URL entry field.

2. Claims: 41-48

A server system for converting input information provided to it into a WWW site address.

3. Claims: 49-77

A software unit adding at least one functionality to a user interface of a www browser.

4. Claims: 78-80

A page retrieval method where the WWW browser entry field information is spell corrected.

5. Claim : 81

A method of accessing an internet resource where the WWW browser entry field information does not even comprise a partial address.

6. Claims: 82-85

A method of e-mail addressing.

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

| | | |
|---|---|--|
| Applicant's or agent's file reference 092/00810 | FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below. | |
| International application No. PCT/IL 99/00055 | International filing date (day/month/year) 28/01/1999 | (Earliest) Priority Date (day/month/year) 30/01/1998 |
| Applicant EASYNET ACCESS INC. et al. | | |

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 4 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ Certain claims were found unsearchable (See Box I).

3. ☒ Unity of invention is lacking (see Box II).

4. With regard to the title,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the abstract,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

☒ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

1
☐ None of the figures.

09/529792

PATENT COOPERATION TREATY

PCT

REC'D 15 MAY 2000

WIPO PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

| | | |
|---|--|--|
| Applicant's or agent's file reference 092/00810 | | See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416) FOR FURTHER ACTION |
| International application No. PCT/IL99/00055 | International filing date (day/month/year) 28/01/1999 | Priority date (day/month/year) 30/01/1998 |
| International Patent Classification (IPC) or national classification and IPC G06F17/30 | | |
| Applicant NET-EXPRESS LTD. et al. | | |

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.



2. This REPORT consists of a total of 11 sheets, including this cover sheet.

☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 10 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☒ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☒ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☒ Certain defects in the international application
- VIII ☒ Certain observations on the international application

| | |
|---|--|
| Date of submission of the demand 23/08/1999 | Date of completion of this report 11.05.00 |
| Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465 | Authorized officer Glaser, N Telephone No. +49 89 2399 8336  |

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/IL99/00055

I. Basis of the report

1. This report has been drawn on the basis of (*substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments.*):

Description, pages:

1-20 as originally filed

Claims, No.:

1-88 as received on 29/03/2000 with letter of 29/03/2000

Drawings, sheets:

1,2 as originally filed

2. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
☐ the claims, Nos.:
☐ the drawings, sheets:

3. ☒ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

see separate sheet

4. Additional observations, if necessary:

III. Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been examined in respect of:

- ☐ the entire international application.
☒ claims Nos. 2-88.

because:

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/IL99/00055

- ☐ the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (*specify*):

- ☒ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. 2-3, 14-15, 16-20, 21-43 are so unclear that no meaningful opinion could be formed (*specify*):

see separate sheet

- ☒ the claims, or said claims Nos. 4-13 are so inadequately supported by the description that no meaningful opinion could be formed.

- ☒ no international search report has been established for the said claims Nos. 44-88.

IV. Lack of unity of invention

1. In response to the invitation to restrict or pay additional fees the applicant has:

- ☐ restricted the claims.
☐ paid additional fees.
☐ paid additional fees under protest.
☒ neither restricted nor paid additional fees.

2. ☐ This Authority found that the requirement of unity of invention is not complied and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.

3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is

- ☐ complied with.
☒ not complied with for the following reasons:

see separate sheet

4. Consequently, the following parts of the international application were the subject of international preliminary examination in establishing this report:

- ☐ all parts.
☒ the parts relating to claims Nos. 1-43.

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/IL99/00055

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

| | | | |
|-------------------------------|------|--------|---|
| Novelty (N) | Yes: | Claims | 1 |
| | No: | Claims | |
| Inventive step (IS) | Yes: | Claims | |
| | No: | Claims | 1 |
| Industrial applicability (IA) | Yes: | Claims | 1 |
| | No: | Claims | |

2. Citations and explanations

see separate sheet

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

see separate sheet

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/IL99/00055

The examination is being carried out on the **following application documents**:

Description, pages:

1-20 as originally filed

Claims, No.:

1-88 as received on 29/03/2000 with letter of 29/03/2000

Drawings, sheets:

1,2 as originally filed

Section I (Basis of opinion)

1. The amendments filed with the letter dated 29.3.2000 introduce subject-matter which extends beyond the content of the application as filed, contrary to Article 34(2)(b) PCT. The amendments concerned are the following:
 - 1.1 Having regard to claims 1, 14, 16 and 21, there is not support found in the application as filed for the feature "information associated with a content of the site". This feature is disregarded from the feature examination.
 - 1.2 No support is found for claims 4-13 **for being made dependent from claim 1** because claim 1 does not define an analysis step which is considered to be necessary for the feature "page address is determined using a database of associations" of claim 4 and the features of claims 5-13.

New claim 4 is seen to correspond to original claim 20 which was dependent on claim 13 and this claim 13 was defining such an analysis step which is not defined in current claim 1.

Section III (No opinion)

- 1.1 Due to the serious lack of conciseness and the resulting lack of clarity (see Section VII/VIII) , it is at present not suitable to carry out a full examination of the claims. Having regard to claims 1-43, there is still a serious doubt about the subject matter for which protection is sought. For that reason, examination is only carried out for the

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/IL99/00055

independent claim 1; note however, the features "software ..." are disregarded from the feature examination due to a lack of clarity (see Section VII/VIII).

- 1.2 It is acknowledged that according to the PCT more than one independent claim might be appropriate for defining the invention; however, the current set of claims 1-43 and the description do not disclose the invention in such terms that the solution to the technical problem can be fully understood, as required by Article 6 and Rule 5 PCT. Moreover, having regard to the description, the independent claims do not define all of the essential features of the invention.
- 1.3 The applicant is invited to refer to Section VII/VIII for further details.
2. No opinion is given to the dependent **claims 17-20 and 22-43**. The dependent claims put an undue burden on the examiner for determining the subject matter of the claims. According to Rule 6.3(c) and PCT/GL/C-III-3.6, all dependent claims should be grouped together to the extent and in the most practicable way possible. The current set of dependent claims creates obscurity in the definition of the subject matter to be protected. It would have been appropriate to define the optional features in the dependent claims in a clear and concise manner that the skilled person in the art is able to identify and to realise the different embodiments.

Section IV (Lack of unity)

- 1.1 A total of **six different inventions** has been found which are not linked to form a single general inventive concept. Therefore the claimed invention lacks unity (Art. 13 PCT) :
 - i. **Claims 1-43** : a page retrieval method for entering non-standard URL addresses into a WWW browser URL entry field
 - ii. **Claims 44-51** : a server system for converting input information provided to it into a WWW site address.
 - iii. **Claims 52-80** : a software unit adding at least one functionality to a user interface of a WWW browser.
 - iv. **Claims 81-83** : a page retrieval method where the WWW browser entry field

information is spell corrected.

- v. **Claim 84** : a method of accessing an internet resource where the WWW browser entry field information does not even comprise a partial address.
- vi. **Claim 85-88** : a method of e-mail addressing.

- 1.2 The search report has been established for claims 1-43 and examination is performed for **claims 1-43** only.

Section V (Novelty, Inventive Step)

- 1.1 Current claim 1, as presently understood according to Section VII/VIII, lacks an inventive step over D1 in the sense of Art. 33(2) PCT. Having regard to Figure 4 of D1, a webpage is disclosed where a user is able to enter non-Latin information through selecting one of the underlined lines, for example the line "... wa arimasuka?". Based on the entered information a webpage is retrieved from the website and directly displayed.
- 1.2 The difference between the subject matter of claim 1 and D1 is seen to be that in claim 1 the information is entered via the user by typing whereas D1 suggests the selection of a page address from a page list.
- 1.3 A skilled person in the art is aware of the several possibilities of entering information into a browsers, among others, by typing or by selection from a list. The replacement of the selection of a list by entering through typing is considered to be an obvious alternative which is known to the skilled person in the art who wants, for example, to overcome the objective problem of providing a simpler information entering for a method of WWW page retrieval with very long page lists where the long lists would require time-consuming scrolling.
- 2.1 The applicant is informed that the feature "selected responsive to a geographical location at which said information is entered" is anticipated by D3 (EP-A-0 643 541 (AT&T Corporation), 15.3.1995) which allows to determine location specific service data from said database. This is disclosed in column 6, lines 48ff., where the ANI is used to automatically provide the subscriber - via the terminal server - with the local weather report for the area in which the call originated.

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/IL99/00055

- 2.2 The general teaching of D3 are location based services for the selection and display of information whereby based on user entered information only that information is selected from a remote server which is responsive to a geographical location at which the location was entered. Such a teaching is of general purpose and transposable to information retrieval and selection in general, among others to WWW page retrieval. A method of WWW page retrieval based on non-Latin language information which is entered by a user, defines obviously geographical locations where said particular non-Latin language is being used to be entered.
3. A new claim 1 according to Section VII/VIII-3.1, would define a standard method of WWW page retrieval **which is neither novel nor inventive over the prior art** such as disclosed in D1. Having regard to the additional features "user-typed information is entered in a non-Latin language", "directly displaying" and "analysing said user-entered information responsive to a geographical location at which said information is entered", the following comments are made :
- 3.1 The feature "directly displaying" of a retrieved webpage assumes that the entered information is **translated into a unique page address** by said translator whereby the page address is either an IP address or a URL address (pages 12-13); otherwise, a selection among the possible pages retrieved based on the entered information would be a necessary. However, the translation of page addresses is a standard operation of DNS servers and is necessary element of a method of WWW page retrieval from a remote website.
- 3.2 The entering of "non-Latin" information for the retrieval of webpages is known in the technical field from search engines; this is acknowledged by the applicant on pages 1-3. Thereby, the information is entered via an entry field. It would be an obvious extension of such a standard search engine to directly display the result of a search if only one unique result is determined as corresponding to said user-entered information.
- 3.3 Standard methods of WWW page retrieval provide lists of preferred places of a user or his last places visited; a non-Latin adapted browser provides such a list in a non-Latin language, i.e. a bookmark or a history list with non-Latin descriptions of webpage titles, and the user is able to choose a webpage from such a list. Thereby,

the corresponding page address is unique and the webpage can be directly displayed. The entering of information by the user is done through a selection from a list or via an entry field, in particular for bookmark lists.

- 3.4 Having regard to "analysing said user-entered information responsive to a geographical location at which said information is entered" and Section VII/VIII-3.3, it is noted that standard methods of WWW page retrieval comprise already the feature of preference lists (i.e. bookmarks, history; note that a user is able to adapt the history of visited webpages by deleting items from said history), kind of user-dependent information which is taken into account for determining a unique page address.

Section VII-VIII (Deficiencies in Form, Content, Clarity)

1. According to Art. 6 EPC an independent claim shall define those features which are necessary and essential for the definition of the claimed subject matter in addition to a statement indicating the designation of the subject matter. It is further noted that a claim shall be clear from the wording of the claim alone (PCT(GL/III-4.2).
2. Having regard to the independent **claims 1, 14, 16 and 21**, the subject matter relates to a page retrieval method for entering non-standard URL addresses into a WWW browser URL entry field but differs in the following features :
 - claim 1 : "wherein said information is entered in a non-Latin language"
 - claim 14 : "wherein directly displaying comprises analysing said information using user-dependent information"
 - claim 16 : "wherein said page is selected responsive to a geographical location at which said information is entered"
 - claim 21 : "wherein said information is entered into a URL entry field in said browser".
- 2.1 **Claims 1, 14, 16 and 21** do not meet the requirements of Article 6 PCT in that the matter for which protection is sought is not clearly defined. The claim attempts to define the subject-matter at hand of terms which do not have a precise technical meaning and which therefore obscure the claim (PCT Guidelines C-III, 4.1-4.3) :

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/IL99/00055

- the features "providing said information to a software not associated with said site; ...; ... by said software" are not understood as their technical effect is not defined precisely enough in the claims.
- it is not understood from the claims how the feature "directly displaying" could be technically realised. Apparently, there is no user interaction like selection or other additional operations when the page is displayed with the browser. It is clear that this implies that a unique page is retrieved and displayed or that a selection is done at the website if more than one page is retrieved.

The above features are therefore disregarded from the feature examination.

- 2.2 **Claims 14, 15 and 16** : it is not understood what contribution the feature "analysing said information using user-dependent information" of claim 14 has for solving the given technical problem defined in the application because the purpose and the technical effect of this feature is unclear.

Moreover, the feature "providing responsive to a geographical location" of claim 15 is seen to require an essential step of "analysing said information responsive to a geographical location .." as defined in claim 16. However, no such step is defined in claim 14 on which claim 15 depends.

- 2.3 **Claim 2** : same objections as to claim 14.

- 2.4 Having regard to **claim 3**, it is unclear if the feature "translation table" is supported by the description which defines on page 12, line 9, a "translation database" instead of a translation table.

- 2.5 **Claims 17-20** : the "entering of information by typing by a user" of the independent claims defines already that the information is entered into an entry field; two options are possible : (1) the standard URL entry field of the browser is used, or (2) the entry field of a second window overlaying the browser. It is not understood what further limitation is introduced by claim 18 over claim 17; same objection to claim 20 and claim 19.

3.1 Having regard to the description, pages 11ff., **a new claim 1** - which would probably overcome most of the clarity objections - could have been defined as follows: a method of WWW page retrieval from a remote website, comprising entering into a browser information which is a form-free domain name of said remote website, said entering comprising typing by a user; providing said user-entered information of a translator which is not associated with said remote website; determining a page address from said user-entered information whereby said translator matches said user-entered information to a translation database to generate said page address, said translation database is which said user-entered information is a unique index; retrieving said WWW page responsive to said page address from said remote website; directly displaying said page, using said browser, without any additional user intervention beyond said entering.

3.2 Having regard to the description, the "directly displaying" of a retrieved webpage assumes that the entered information is translated into **a unique page address** by said translator whereby the page address is either an IP address or a URL address (pages 12-13); otherwise, a selection among the possible pages retrieved based on the entered information would be a necessary. The existence of a "translation database" (page 4, lines 19-21) is seen as to be essential and should have been defined in claim 1.

It is further noted that a lack of clarity arises from the claims and the description (page 4, page 12) with respect to the terms "database of associations", "translation database", "local translation database" which appear to define the same technical feature. If this is the case, then a consistent terminology should be used through-out the application.

3.3 It is still unclear to which extend the analysis step (for example, claims 14 and 15) contributes to the determination of a unique page address from the translation database based on user-entered information. The translator is said to determine a unique page address from a translation database where said database includes information about the user. In this context, the analysis is understood to take a geographical location at which the information is entered into account (claim 15), or the preferences of a user about associations of non-Latin information with URL or page addresses (claim 14).

30-03-2000

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IL 009900055 -

CLAIMS

1. A method of WWW page retrieval from a web site, comprising:
5 entering information associated with a content of the site, which information is not a WWW address or a portion thereof, which entering comprises typing by a user;
providing said information to a software not associated with said site;
providing a page address responsive to said entered information, by said software;
retrieving said page responsive to said page address; and
10 directly displaying said page, using a browser, without any additional user intervention, beyond said entering,
wherein said information is entered in a non-Latin language.
2. A method according to claim 1, comprising providing user-dependent information and
15 wherein providing a page address comprises analyzing said information using said user-dependent information.
3. A method according to any of the preceding claims, wherein providing a page address comprises selecting a URL from a translation table in which said information is a unique index.
20
4. A method according to any of claims 1-2, wherein said page address is determined using a database of associations.
5. A method according to claim 4, wherein said database is at least logically associated
25 with a particular user.
6. A method according to claim 5, wherein said database includes information regarding a particular user, which information is entered by said user, which page is selected for display responsive to said information and wherein said database is stored at a location remote from
30 where the information is entered for display of said page.
7. A method according to claim 4 or claim 5, wherein said database comprises at least one association which is particular to said particular user.

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8. A method according to claim 7, wherein analyzing comprises analyzing responsive to said at least one association.

9. A method according to any of claims 7-8, wherein said at least one association is entered by said particular user.

10. A method according to any of claims 7-9, wherein said at least one association is automatically generated responsive to a selection of a WWW page, from a plurality of suggested pages, by said particular user.

11. A method according to claim 7, wherein at least one association in said database is automatically generated responsive to a selection of a particular WWW page, from a plurality of suggested pages, by a plurality of users.

12. A method according to claim 4 or claim 5, wherein said database is at least logically associated with a translation server, which utilizes said database for translation.

13. A method according to any of claims 5-12, wherein said at least logical association comprises a physical association.

14. A method of WWW page retrieval from a web site, comprising:
entering information associated with the content of the site, which information is not a WWW address or a portion thereof, which entering comprises typing by a user;
providing said information to a software not associated with said site;
analyzing said information using user-dependent information;
providing a page address responsive to said entered information and said analysis, by said software;

retrieving said page responsive to said page address; and

directly displaying said page, using a browser, without any additional user intervention,

beyond said entering

15. A method according to any of the preceding claims, wherein providing comprises providing responsive to a geographical location at which said information is entered.

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16. A method of WWW page retrieval from a web site, comprising:
entering information associated with the content of the site, which information is not a
WWW address or a portion thereof, which entering comprises typing by a user;
providing said information to a software not associated with said site;
5 analyzing said information responsive to a geographical location at which said
information is entered;
providing a page address responsive to said entered information and said analysis, by
said software;
retrieving said page responsive to said page address; and
10 directly displaying said page, using a browser, without any additional user intervention,
beyond said entering.
17. A method according to any of the preceding claims, wherein said information is entered
by a user in a same way in which a standard URL would be entered.
18. A method according to claim 17, wherein said information is entered into a URL entry
field in said browser.
19. A method according to claim 1-16, wherein said information is entered into a window
20 overlaying said browser.
20. A method according to claim 19, wherein said window is overlaying a location window
of said browser.
- 25 21. A method of WWW page retrieval from a web site, comprising:
entering information associated with the content of the site, which information is not a
WWW address or a portion thereof, which entering comprises typing by a user;
providing said information to a software not associated with said site;
providing a page address responsive to said entered information, by said software;
30 retrieving said page responsive to said page address; and
directly displaying said page, using a browser, without any additional user intervention,
beyond said entering,
wherein said information is entered into a URL entry field in said browser.

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22. A method according to any of claims 14, 16 or 21, wherein said information is in a non-Latin language.

23. A method according to any of claims 1-22, wherein said information does not meet domain name specifications.

24. A method according to any of claims 1-23, wherein said information does not meet URL specifications.

25. A method according to any of claims 1-24, wherein said information comprises a plurality of words.

26. A method according to any of claims 1-24, wherein said information comprises a field identifier and a field-match value.

27. A method according to any of claims 1-24, wherein said information is associated with an owner of the site.

28. A method according to claim 27, wherein said information comprises a partial street address of said owner.

29. A method according to claim 27, wherein said information comprises a telephone number of said owner.

30. A method according to any of the preceding claims, comprising analyzing said information to determine a single translation thereof.

31. A method according to claim 30, wherein analyzing comprises correcting spelling in said information.

32. A method according to claim 31, wherein correcting spelling comprises correcting for at least one transliteration error.

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33. A method according to any of claims 30-32, wherein analyzing comprises applying natural language recognition on said information.

5 34. A method according to any of claims 30-33, wherein analyzing comprises blocking access to certain types of sites.

35. A method according to any of claims 30-33, wherein said translation comprises a only domain name.

10 36. A method according to claim 35, wherein said translation comprises a URL.

37. A method according to any of claims 30-33, wherein said analyzing is performed locally, where said page is displayed.

15 38. A method according to any of claims 30-33, wherein said analyzing is performed remotely from where said page is displayed.

39. A method according to any of claims 30-38, wherein said analyzing comprises determining a one-to-one mapping between said information and a translation.

20

40. A method according to any of the preceding claims, wherein said information is entered in a language not supported by said browser.

25 41. A method according to any of the preceding claims, wherein said information is entered in a font not supported by said browser.

42. A method according to any of the preceding claims, wherein directly displaying said page, comprises automatically providing password information for accessing said page.

30 43. A method according to claim 42, wherein a plurality of such passwords are stored in a password database associated with said user.

44. A server comprising:
a database associating business information with WWW sites;

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a translator which converts an input comprising business information into a WWW site address, using said database; and
a user information database,
wherein said translator utilizes said user information database for the conversion.

5 45. A method according to claim 44, wherein said user database comprises a user's previous desired conversions.

46. A method according to claim 44, wherein said user database comprises a user's
10 geographical location.

47. A system including a server according to any of claims 44-46 and a client which provides said input to said server and displays a WWW page indicated by said address.

15 48. A server comprising:
a database associating information with WWW sites;
a user information database; and
a translator which converts input information provided to it, into a WWW site address,
using said database and said user database.

20 49. A server according to claim 48, wherein said input information comprises business information.

50. A server according to claim 48, wherein said input information comprises domain name
25 information.

51. A server according to claim 48, wherein said input information comprises URL information.

30 52. A software unit for integrating with an existing browser, comprising:
a first module adapted to be integrated with said browser and which adds at least one functionality to a user interface of said browser; and
a second module which communicates with a remote site having stored therein information,

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wherein said second module uses said communication to retrieve at least some of said information to perform said added functionality.

53. A unit according to claim 52, wherein said functionality comprises sending an e-mail to an owner of a site and wherein said information comprises an association between a site and an e-mail address of the owner thereof.

54. A unit according to claim 52, wherein said functionality comprises a poll answering interface and wherein said information comprises at least one poll question to display.

55. A unit according to claim 52, wherein said functionality comprises translating partial information into WWW addresses and wherein said information comprises an association between partial information and WWW addresses.

56. A unit according to any of claims 52-55, comprising a third module which updates said information responsive to input entered at said browser.

57. A unit according to any of claims 52-56, wherein said remote site performs an operation requested by said functionality, responsive to said user information database.

58. A unit according to claim 57, wherein said remote site performs a matching between partial entered information and a business information database, responsive to information associated with a user of said browser.

59. A unit according to claim 57, wherein said remote site sends credit card information to a second remote site, responsive to said functionality and to said information associated with a user of said browser.

60. A unit according to any of claims 52-59, wherein said functionality does not affect a visual format of a GUI (Graphical User Interface) of said browser, when said functionality is not in use.

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61. A unit according to any of claims 52-59, wherein said functionality does not affect a visual format of a GUI (Graphical User Interface) of said browser, when said functionality is in use.

5 62. A software unit comprising:

a first module which receives, from a browser, a WWW address which does not meet WWW addressing standards;

a second module which translates said address into a WWW address which meets WWW addressing standards; and

10 a third module which instructs said browser to display a page associated with said translated WWW address.

63. A unit according to claim 62, wherein said second module performs said translation using a remote translation service.

15

64. A unit according to claim 62 or claim 63, wherein said first module impersonates a TCP/IP stack.

65. A unit according to claim 62 or claim 63, wherein said first module impersonates a
20 HTTP service handler.

66. A unit according to claim 62 or claim 63, wherein said first module impersonates a DNS server.

25 67. A unit according to claim 62 or claim 63, wherein said first module steals a user input from said browser.

68. A unit according to any of claims 62-67, wherein said third module utilizes an OLE/DDE service.

30

69. A unit according to any of claims 62-68, wherein said translated address comprises a complete URL.

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70. A unit according to any of claims 62-69, wherein said unit comprises an upload module which provides site accessing information to uploaded to a remote computer.

5 71. A unit according to any of claims 62-70, wherein said unit comprises a page generation module which generates a WWW page in response to said non-standard WWW address.

72. A unit according to claim 71, wherein said generated WWW page comprises a list of possible WWW pages.

10 73. A unit according to claim 71 or 72, wherein said generated page comprises a directory of a plurality of pages in a particular site.

74. A unit according to any of claims 71-73, wherein said generated page comprises at least one advertisement.

15

75. A unit according to any of claims 71-74, wherein said generated page displays a request for more information.

16 76. A unit according to any of claims 71-75, wherein said generated page is generated locally, in response to a request for a remote WWW address.

77. A unit according to any of claims 62-76, wherein said unit comprises a messaging module which displays a message responsive to non-availability of a required WWW page.

25 78. A unit according to any of claims 62-77, wherein said unit comprises an e-mail module which corrects e-mail addresses, responsive to information associated with e-mail addressees.

79. A unit according to any of claims 52-78, wherein said unit is a separately compiled software.

30

80. A computer readable medium having encoded thereon a representation of a software unit according to any of claims 52-79.

81. A method of WWW page retrieval from a web site, comprising:

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entering information associated with the site;
spell correcting said information; and
displaying a page responsive to said information, using a browser.

5 82. A method according to claim 81, wherein spell correcting comprises correcting transliteration errors.

83. A method according to claim 82, wherein said information comprises a URL.

10 84. A method of accessing an Internet resource, comprising:
entering information, which information does not comprise even a partial address for said resource; and

accessing said resource responsive to said information, without any additional user intervention, beyond said entering,

15 wherein said resource comprises a news group.

85. A method of e-mail addressing, comprising:

entering an incorrect e-mail address, which does not form an alias, a portion or a nickname of a valid e-mail address;

20 automatically correcting said address, using information at a first, remote, location; and
sending an e-mail message to a second remote location, via an Internet, using said corrected address.

25 86. A method according to claim 85, wherein said incorrect e-mail address comprises information associated with a desired e-mail addressee.

87. A method according to claim 86, wherein said information comprises at least a portion of a geographical address.

30 88. A method according to claim 86, wherein said information comprises at least a portion of a telephone number.

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IMPORTANT NOTIFICATION

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30/01/1998

Applicant
NET-EXPRESS LTD. et al.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

4. REMINDER

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

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| Applicant NET-EXPRESS LTD. et al. | | | |



1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 11 sheets, including this cover sheet.

☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

 These annexes consist of a total of 10 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☒ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☒ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☒ Certain defects in the international application
- VIII ☒ Certain observations on the international application

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